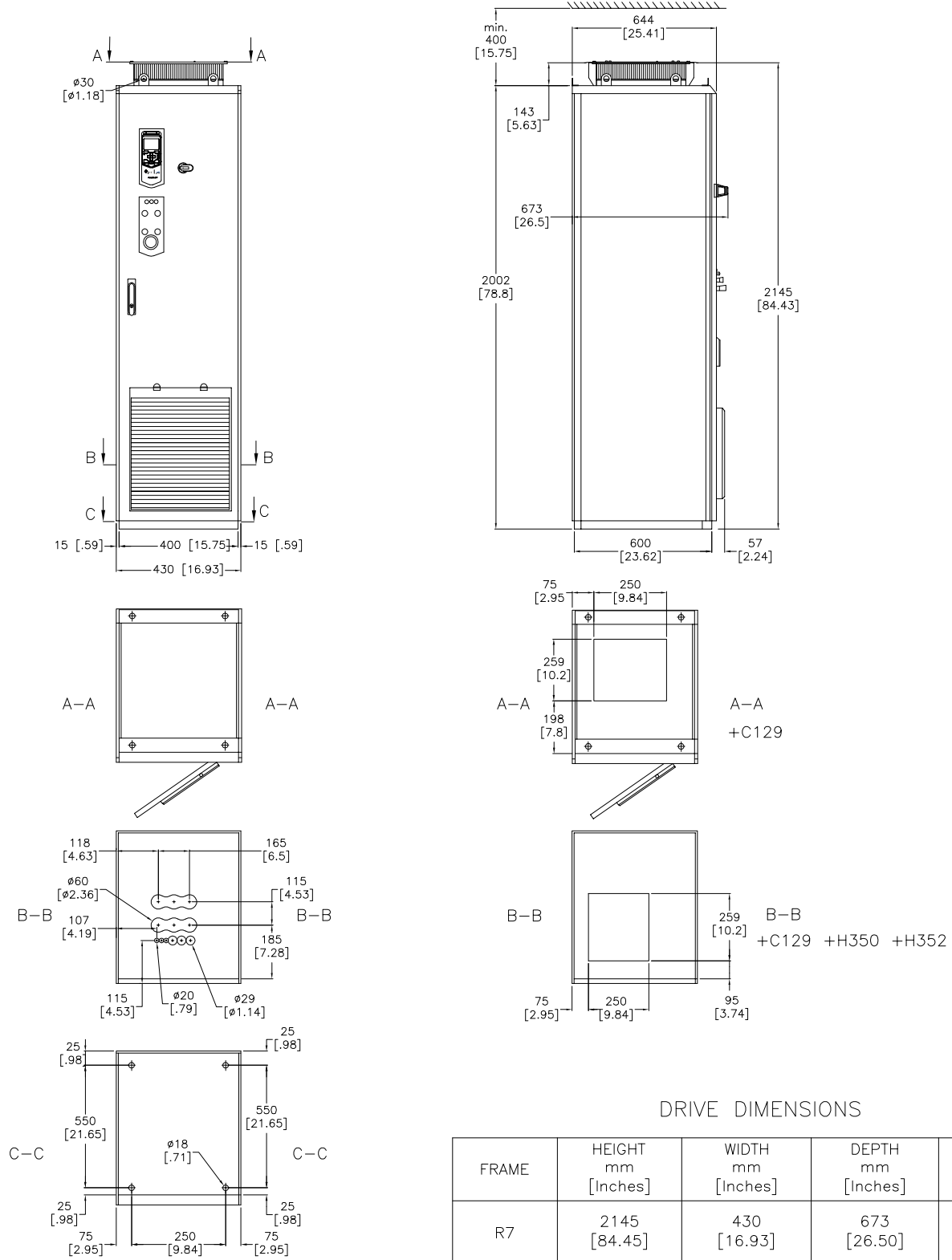


PumpSmart PS220 pump and motor Control System

The PumpSmart PS220 is a pump and motor control system that provides integral starting, right-sizing, pump protection and process control for all pumping applications. The PumpSmart PS220 is based upon the ABB ACS880-07 variable frequency drive platform. PumpSmart Control Solutions has worked with ABB to incorporate proprietary pump protection, process control and configuration algorithms into the drive to make it more suitable for pumping applications



DRIVE DIMENSIONS

FRAME	HEIGHT mm [Inches]	WIDTH mm [Inches]	DEPTH mm [Inches]	WEIGHT Kg [lbs]
R7	2145 [84.45]	430 [16.93]	673 [26.50]	250 [560]

- 1-For marine construction (option +C121) extra height is 10 mm (0.39 in.) due to the fastening bars at the bottom of the cabinet.
- 2-Extra width with brake resistors (option +D151): SAFURxxxFxxx 400 mm (15.75in.), 2xSAFURxxxFxxx 800mm(31.49 in.). Extra width for frames R6 to R8 with EMC filter (option +E202): 200mm (7.87in.). Total width of R6 to R9 frame sizes with molded case circuit breaker (option +F289) is 830mm (32.68in.)
- 3-For drives with marine fastening bars (option +C121): Depth is 757 mm.

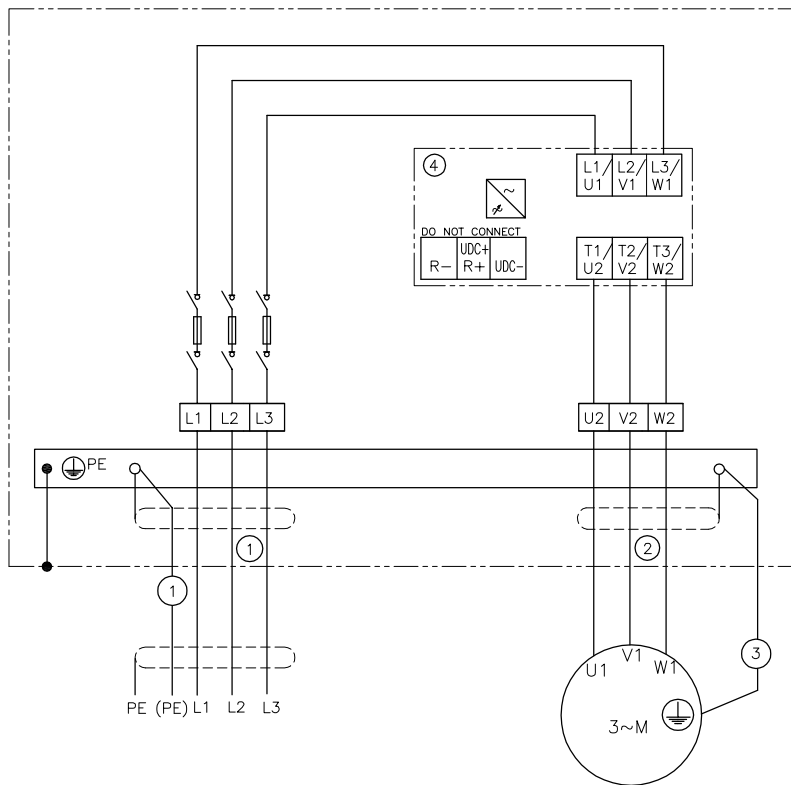
Drive Ratings

ITT P/N	ABB P/N	Input Voltage (VAC)	Power ¹		Rated Current ² (A)	Heat Dissipation		Air Flow		Frame	Enclosure Rating	Recommended Main Fuses	
			HP	kW		Watts	BTU/hr	m ³ /hr	CFM			UL Type (A) Bussmann	IEC Type Bussmann
K03556A03	ACS880-07-0156A-5	380 – 500	125	90	148	2440	8326	1750	1130	R7	NEMA 2 IP22	DFJ-300	170M3816D
K03556A04	ACS880-07-0180A-5	380 – 500	150	110	171	2810	9588					DFJ-300	170M3817D
K03558A03	ACS880-07-0098A-7	525 – 690	100	75	93	2440	8326					DFJ-250	170M3814D
K03558A04	ACS880-07-0119A-7	525 – 690	125	90	113	2810	9588					DFJ-250	170M3816D

1- Nominal Power Rating at listed voltage rating

2- Continuous base current with 10% overload for 1 min/5 minutes

Power Cabling Schematic



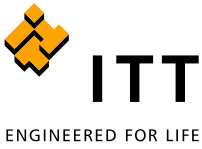
1 360-degree grounding is recommended if shielded cable is used. Ground the other end of the input cable shield or PE conductor at the distribution board.

2 360-degree grounding is required.

3 Use a separate grounding cable if the shield does not meet the requirements of IEC 61439-1 and there is no symmetrically constructed grounding conductor in the cable.

4 Drive module.

Frame size	Terminals L1,L2,L3,U2,V2,W2				Earthing PE Terminal			
	Max. Wire Size AWG (mm ²)	Screw	Torque		Max. Wire Size AWG (mm ²)	Screw	Torque	
			N-m	Lb-ft			N-m	Lb-ft
R7	350 MCM (185)	M10	20...40	15...30	350 MCM (185)	M10	30...44	22...32



PumpSmart® PS220
Drive Dimensions and Ratings
Frame R7 - NEMA2 / IP22
ACS880-07



PumpSmart® PS220
 Drive Hardware: ABB ACS880-07

CERTIFICATIONS

600VAC and Below
 UL Listed
 Canadian UL Listed

INPUT POWER

Voltage.....380..690 VAC 3 Phase $\pm 10\% - 15\%$
 Overload.....110% for 1min/5 min,
 140-150% for 10 sec at startup
 Frequency.....48..63Hz
 Fundamental Power
 Factor(Cos Φ)0.98 at nominal load
 Efficiency.....98% (at nominal power)

MOTOR CONNECTION

Voltage.....0 to U1, 3-Phase Symmetrical,
 Umax at the field weakening point
 Frequency.....0...500Hz
 Field Weakening Point.....5...500Hz
 Switching Frequency2.7KHz (typically)

Short Circuit Withstand Rating.....
 100,000AIC(UL) R1-R9
 when protected by fuses given
 in the hardware manual.

ConnectionU2, V2, W2

ENVIRONMENTAL LIMITS

Enclosures.....NEMA2/IP22

Temperature.....32°to122°F(0°to50°C)Standard
 104..122°F(40-50C) with
 de-rating (1%/1C)

Humidity.....5..95% Relative Humidity

Altitude.....0..3300 Ft(0-1000M) Standard
 3300..13,123Ft (1000..4000M) with
 de-rating (1%/100M)

Vibration.....Max.1mm(0.04 in.) 5-13.2 Hz
 Max.7 m/s² (23ft/s²) (13.2-100Hz)
 Sinusoidal

Shock, Free Fall.....Not Allowed

ANALOG INPUTS

Two (2) Programmable Differential Inputs
 Two (2) Current or Voltage Signals.....0(4) to 20 mA, Input Resistance
 RI=> 100 ohms or
 -10Vdc /0(2) to+10Vdc,
 Input Resistance RI=> 200 Kohms

Common Mode Voltage.....+/-15Vdc,max.
 Common Mode Rejection Ratio.....> 60dB at 50Hz
 Resolution.....0.025% (12bit) (11 bit+Sign bit)
 Accuracy.....+/-0.5% of full Scale Range
 Input Updating Time.....1 ms (Primary Control Program)
 Optional Isolation.....Available through optional external
 module

ANALOG OUTPUTS

Two (2) Programmable Current Outputs
 Signal Level.....0(4) to 20mA
 Resolution.....0.025% (12bit) (11 bit+Sign bit)
 Accuracy.....+/-1% of Full Scale Range
 Maximum Load Impedance....500 ohms
 Output Updating Time.....1 ms (primary Control Program)
 Frequency Range.....0-300Hz

DIGITAL INPUTS

Six(6) Programmable Digital Inputs(Common Grounds), plus One(1)
 Start Interlock
 Isolation.....Isolated
 Isolation Test Voltage.....500VAC, 1 minute
 Input Type.....NPN/PNP (DI1...D15), NPN (D16)
 Signal Level.....24Vdc
 Rin.....2.0 kOhms
 Logical switch thresholds.....<5Vdc at "0",>15Vdc at "1"
 Input Current.....15mA, Digital Input 1 to Digital Input
 5, 5mA Digital Input 6
 Filtering Time Constant.....Hardware Filter .04ms.
 Input Updating Time.....Digital Filtering up to 8ms.(Primary
 Control Program)

Internal 24Vdc Supply for Digital Inputs
 Voltage.....24Vdc
 Maximum Current.....200mA
 Connector.....XD24.2 and XD24.4
 Protection.....Short Circuit Proof
 An external 24 Vdc supply may be used instead of the Internal
 supply

DIGITAL INPUTS/OUTPUTS

Two(2) programmable Digital Inputs/Outputs
 Isolation.....Isolated
 Input Configuration.....DIO1 frequency input(0...16KHz
 with 4 microsecond hardware filtering)

Output Configuration.....DIO2 frequency output(0...16KHz
 with 4 microsecond hardware filtering)

Signal Level.....24Vdc
 Rin.....2.0Kohm
 Logical Input switch thresholds...<5Vdc at "0",>15Vdc at "1"
 Filtering Time Constant.....0.25ms
 As output.....Total output current from
 +24VD is limited to 200ma.

RELAY OUTPUTS

Three Programmable Relay Outputs
 Switching Capacity.....2 A at 30Vdc or 250Vac
 Maximum Continuous Current.....IC=2 Amps RMS
 ProtectionVaristors (250V)
 Output Updating Time.....1 ms (Primary Control
 Program)

REFERENCE POWER SUPPLY

Voltage.....+10Vdc,0,-10Vdc+/-0.5% at
 25°C (77°F)
 Maximum Load.....10mA
 Applicable Potentiometer..1 k-ohm to 10 k-ohm

FIELDBUS

Communication Modbus, Profibus DP
 Modules..... Ethernet, DeviceNet